

WHAT IS CLAIMED IS:

1. An apparatus for displaying an image to an observer comprising:

a display screen upon which stripes of the image appear in at least three distinct phases;

a light blocking shutter disposed in front of the display screen forming a stripe pattern which lets through only 1/3 of each stripe of the image on the display screen during each of the at least three distinct phases;

a computer connected to the display screen and the light blocking shutter which changes the phases so in each phase the stripe pattern is shifted laterally, which renders 2 3D scenes corresponding to the eyes of the observer, which produces a proper left/right orientation pattern for each of the three phases and which interleaves the left/right orientations into three successive time phases as red, green and blue, respectively; and

an eye tracker for identifying the locations of the observers' eyes and providing the location to the computer.

2. An apparatus has described in Claim 1 wherein the display screen includes a rear projection screen.

3. An apparatus as described in Claim 2 wherein the display screen includes a field programmable gate array in

communication with the projection screen and the shutter which synchronizes the phases between the shutter and the projection screen.

4. An apparatus as described in Claim 3 wherein the display screen includes a digital light processor projector in communication with the array and the projection screen which displays the three phases of images sequentially and controls the timing of the phases.

5. An apparatus as described in Claim 4 wherein the display screen includes a ferroelectric liquid crystal in communication with the array, the light processor, and the projection screen which shutters the start and stop of each phase.

6. An apparatus as described in Claim 5 wherein the shutter includes a pi-cell.

7. A method for displaying an image to an observer comprising the steps of:

identifying locations of the observer's eyes with an eye tracker;

sending the locations to a computer with the eye tracker;

rendering two 3D scenes, one for each eye and for each of the three phases, a proper left/right alteration pattern which are

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interleaved into three successive time phases as red, green and blue, respectively;

displaying on a display screen stripes of the image in at least three distinct phases; and

forming a stripe pattern which lets through only 1/3 of each stripe of the image on the display screen during each of the at least three distinct phases with a light blocking shutter disposed in front of the screen.

8. A method as described in Claim 7 wherein the forming step includes the step of encoding into 3 1-dimensional bit-maps the three phases of stripe for the light shutter, each indicating an on-off pattern for shutter micro-stripes at one of the three phases; and sending these bit-maps to a field programmable gate array of the display screen.

9. A method as described in Claim 8 wherein the forming step includes the step of sending with the field programmable gate array the three bit-patterns to a pi-cell light shutter in rotating sequence.

10. A method as described in Claim 9 wherein the forming step includes the step of controlling with a digital light processor projector of the display screen timing of the rotating sequence of the three-bit patterns to the pi-cell.

11. A method as described in Claim 10 wherein the displaying step includes the step of displaying with the digital light processor projector the three image phases in succession.